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High-reliability piezoelectric pressure transducers

The model 522M series is a family of high-reliability piezoelectric pressure transducers, expressly designed for dynamic measurement of pressure fluctuations, even in extreme temperatures of up to +1000°F continuous and up to +1200°F intermittent and within high static pressure environments.

Featuring an all-welded Inconel® construction for maximum temperature survivability, 522M series features an integral metal-sheathed hardline cable of either triaxial construction that offers output signal-to-case isolation or a shielded twisted-pair for a differential output. The electrical design of these sensors is fully optimized for use with both single-ended and differential amplifiers.

High temperature dynamic pressure			
Model number	522M17	522M37A	522M35A
Key features	High temperature, single ended output	Variable cable length Differential output	2ft fixed length cable with overbraid EEx nA II TI −20°C <Tamb< 399°C certified Differential output
Sensitivity pC/psi, typical	12	17	17
Resonant frequency kHz	45	20	20
Vibration sensitivity pC/g	0.05	0.05	0.05
Max temperature sensor °F (°C)	+1000 (+538) continuous +1200 (+650) intermittent	+986 (+530) continuous +1040 (+560) intermittent	+986 (+530) continuous +1040 (+560) intermittent
Max temperature connector °F (°C)	+351 (+177) continuous +450 (+232) intermittent	+500 (+260)	+500 (+260)
Operating static pressure psi	2500	400	400
Resistance min at max temp ohms	10k	50k	50k
Dynamic range psi	500	20	20
Weight (without cable) g (oz)	25 (0.88)	18.1 (0.64)	250 (8.8) with cable
Exit type/connector	10-32 coaxial receptacle	EN2997 3pin	EN2997 3pin
Mounting	Designed to use a compressive seal mechanism	Designed to use a compressive seal mechanism	Designed to use a compressive seal mechanism
Cable optional	3090C-XXX	7196MXX	7196MXX

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Cables

Supportive cables			
Model number	3075M6	6918M30	3076
Connector 1	10-32 male plug	7/16-27 female plug (2 socket)	10-32, Hex
Connector 2	10-32 male plug	7/16-27 male receptacle	10-32, Hex
Cable type	Coaxial, hardline	Twisted pair, hardline	Coaxial, softline
Capacitance(max) pF/ft	63	80	75
Jacket material	304 SS with fiberglass jacket	Steel sheath with SS overbraid	Stainless steel
Overall diameter (max) in	0.07	0.25	0.095
Bend radius(min) in	0.75	0.8	0.25
Temperature range °C (°F)	−184 to +482 (−300 to +900)	−54 to +482 (−65 to +900)	−54 to +538 (65 to +1000) [1]
Low noise treated	No	No	No

[1] Currently, developing 3076A which will be rated to 1200°F (650°C) and will have special features to minimize any potential ground loops. Available 2020.

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v120819

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Taking the heat

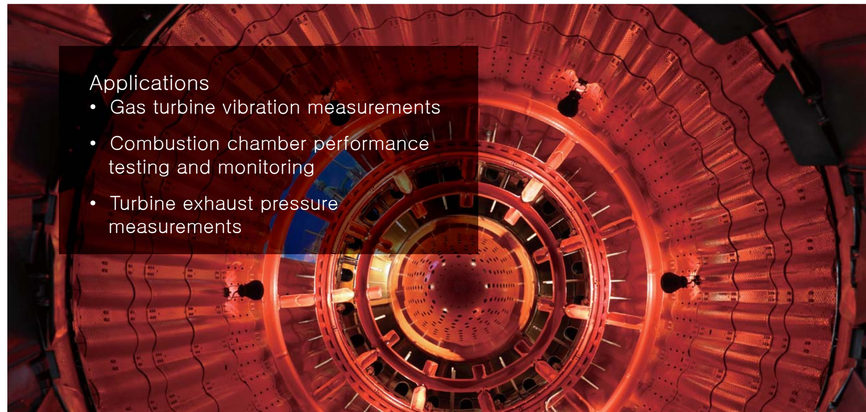
Sensors for high temperature dynamic measurements

When selecting sensing instruments for measuring dynamic events in very high temperature (>250°C) applications, it involves much more than just matching the temperature rating of the accelerometer or pressure transducer to the test environment. At very high temperatures, every component has to work together in a synergistic fashion. The cable that transmits the signals has to be able to withstand the environment and without adding triboelectric noise. The charge converter that receives and conditions the signal should match the output impedance of the sensor over its entire temperature range.

As a leading provider of pressure and vibration sensors for the most demanding aerospace, nuclear, turbine and industrial control measurement applications, Meggitt's advanced sensors are proven to withstand the challenges of extreme environments. Our small, lightweight sensors excel in high temperatures and provide long term, stable performance.

Typically, the higher temperature applications require a hard line cable but Meggitt has recently developed an intriguing alternative that has the temperature capacity of a high temperature mineral insulated hardline cable yet is extremely flexible like a softline cable. It is ideal for installations that require flexibility for cable routing, low noise and temperatures up to +1000°F (+538°C).

- Able to withstand extreme heat
- Long term, stable performance
- Small size & lightweight



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Piezoelectric accelerometers

Our piezoelectric accelerometers are designed specifically for use in extremely high temperature environments seen in combustion turbine applications. Several of these accelerometers are designed for continuous operation at +1200°F (+650°C) and intermittent operation (defined as 5 minutes over a 60 minute period) up to +1400°F (+760°C). Our newest addition to the high temp family is rated to +1500°F (+815°C). These small and light weight accelerometers facilitate installation in cramped locations with minimal structural support.

+500°F /+750°F
(+260°C / +399°C)

+900°F
(+482°C)

+1200°F /+1500°F
(+650°C / +815°C)

Vibration sensors

Model number	2273A	2273AM1/2273AM20
Key features	Radiation tested Signal return connected to case	Radiation tested Signal ground isolated Side or top connector
Sensitivity pC/g, typical	3	10
Sinusoidal limit g	1000	500
Shock limit g	10,000	3000
Frequency response ±5% Hz	1–6000	20–5000
Frequency response dB ref. Hz	(1dB) 1–10,000	(1dB) 1–7000
Operating static pressure psi	30	27
Temperature range °F (°C)	–300 to +750 (–184 to +399)	–67 to +750 (–55 to +399)
Resistance min at max temp ohms	10M	10M
Signal/ground isolation	No	Yes
Hermetic seal	Yes	Yes
Weight (without cable) g (oz)	25 (0.88)	33 (1.16)
Dimensions in (mm)	.625 hex x .90 (15.88 x 22.9)	5/8 hex x 1.06 (15.9 hex x 26.9)
Mounting method	Stud	Stud
Cable optional	3090C (rated to 500°F), 3075M6–120 (rated to 900°F), 3076 (rated to 1000°F)	3075M6–120, 3076–XXX

Vibration sensors

Model number	2276	2248 / 2248M1	6233C	2278	2280
Key features	Radiation tested	Small and lightweight	ARINC mount Differential output	Radiation tested Small, lightweight triax	Triaxial
Sensitivity pC/g, typical	10	3.0	10 / 50 / 100	4	3
Sinusoidal limit g	500	500	1000 / 1000 / 500	500	500
Shock limit g	3000	3000	2000 / 2000 / 1000	2000	3000
Frequency response ±5% Hz	1–5000	20–5000	10–5000 / 2500/2000	1–4000	10–4000
Frequency response dB ref. Hz	(1dB) 1–7000	(1dB) 1–8000	(1dB) 1–9000/4500/4000	(3dB) 1–6000	–
ResonancekHz	27		31 / 16 / 12	20	25
Temperature range °C (°F)	–67 to +900 (–55 to +482)	–65 to +900 (–54 to +482)	–67 to +900 (–55 to +482)	–67 to +1200 (–55 to +650)	–65 to +900 (–54 to +482)
Resistance min at max temp ohms	100K	25K	100K	100K	100K
Signal/ground isolation	No	No	Yes	Yes	Yes
Hermetic seal	Yes	Yes	Yes	Yes	Yes
Weight (without cable) g (oz)	30 (1.06)	13 (.46)	75 / 110 / 110 (2.64 / 3.88 / 3.88)	55 (1.95)	250 (8.82)
Dimensions in (mm)	5/8 hex x 1.00 (15.9 hex x 25.4)	0.437 x 0.437 x 0.650 (11.09 x 11.09 x 16.51)	1.64 x 1.19 x 1.00 / 1.25 / 1.50 (41.6 x 30.2 x 25.4 / 81.8 / 38.1)	.625 x 1.25 (15.88 x 31.75)	1.35 x 1.35 x 1.35 (34.3 x 34.3 x 34.3)
Mounting method	Stud	2x 6–32 screw / stud	3x 8–32 socket HD screw	Screw	2x 8–32 socket HD screw
Cable optional	3075M6–120, 3076–XXX	3075M6–120, 3076–XXX	6918MXX, 7196MXX	3075M6–120 (rated to 900°F), 3076–XXX (rated to 1000°F), 3076A [1]–XXX (rated to 1200°F)	3075M6–120, 3076–XXX

Vibration sensors

Model number	6240M10	6243MX	6237M7X	6235	6245
Key features	No thermal velocity spikes	No thermal velocity spikes Single ended and differential output	High sensitivity Two options with sensitivity 90° apart		Extreme temperature No thermal velocity spikes
Sensitivity pC/g, typical	5	5.5	10	10	3
Sinusoidal limit g	250	500	500	1000	500
Shock limit g	1000	2000	2000	2000	2000
Frequency response ±5% Hz	30–2000	50–2000	50–2000		50–3000
Frequency response dB ref. Hz	(1dB) 1–3000	(3dB) 1–6000	(1dB) 1–5000	(1dB) 1–9000	(3dB) 1–6000
ResonancekHz	10	11	11	30	11
Temperature range °C (°F)	–65 to +1200 (–54 to +650)	–65 to +1200 (–54 to +650)	–65 to +1200 (–54 to +650)	–323 to +900 (–196 to +482)	–65 to +1500 (–55 to +815)
Resistance min at max temp ohms	10K	10K	10K		10K
Signal/ground isolation	Yes	Yes	Yes		Yes
Hermetic seal	Yes	Yes	No	Yes	Yes
Weight (without cable) g (oz)	95 (3.35)	30 (1.1)	30 (1.1)	75 (2.6)	30 (1.1)
Dimensions in (mm)	1.34 x .80 x .80 (33.9 x 20.3 x 20.3)	0.96 x 0.56 x 0.56 (24.38 x 14.2 x 14.2)	0.96 x 0.56 x 0.56 (24.38 x 14.2 x 14.2)		0.96 x 0.56 x 0.56 (24.38 x 14.2 x 14.2)
Mounting method	1/4–28 socket HD screw	10–32 socket HD screw or 12pt	10–32 socket HD screw or 12pt		10–32 socket HD screw or 12pt
Cable	Integral	Integral	Integral	Integral	Integral
Cable optional	3090C–XXX	3090C–XXX	3090C–XXX		3090C–XXX